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Dated: December 8, 2004

Signature:

Lakeisha Bryant
(Lakeisha Bryant)

Docket No.: 55,661 (70904)
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of: Hiroto Yoshioka, et al.

Patent No.: 6,810,548 *68*

Issued: November 2, 2004

For: CLEANING APPARATUS

Certificate
DEC 20 2004
of Correction

REQUEST FOR CERTIFICATE OF CORRECTION
PURSUANT TO 37 CFR 1.322

MS Post Issue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentee noted omissions and typographical errors, which should be corrected.

On the title page of the patent, a copy of which is provided as an attachment hereto, the Patent Office has omitted cited references in the Reference Cited section (56). Please add the following cited references:

5,576,822

11/19/1996

Nero R. Linblad, et al.

The patent was considered by Examiner Chin during prosecution of the application as evidenced by the enclosed copy of Form PTO-1449 which has been duly initialed by Examiner Chin.

DEC 21 2004

Please replace the Korean Patent Office reference with the following:

Korean Patent Office Office Action dated April 30, 2004 for corresponding application no 10-2001-11161 (2 pp.) and English translation thereof (4 pp.).

The Office Action was dated April 30, 2004 (not April 30, 2003) as evidenced by the enclosed copy of Form PTO-1449.

The errors were not in the application as filed by applicant; accordingly no fee is required.

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentee respectfully solicits the granting of the requested Certificate of Correction.

Dated: December 8, 2004

Respectfully submitted,

By 

George W. Hartnell, III

Registration No.: 42,639

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Attorney for Applicant

DEC 21 2004

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

PATENT NO. : 6,810,548 *B2*
DATED : November 2, 2004
INVENTOR(S) : Hiroto Yoshioka, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page of the patent, Column 1, Item (56), please add the following cited references:

- 5,576,822 11/19/96 Nero R. Linblad, et al.

On the title page of the patent, Column 2, Item (56) "Other Publications", please replace the entry for the Korean Patent Office Office Action with the following:

- Korean Patent Office Office Action dated April 30, 2004 for corresponding application no. 10-2001-11161 (2 pp.) and English Translation thereof (4 pp.).

MAILING ADDRESS OF SENDER:
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Boston, Massachusetts 02205

PATENT NO. 6,810,548

No. of additional copies 1

DEC 21 2004

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

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PATENT NO. 6,810,548

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| FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT | DOCKET NO: 55,661 (70904) | SERIAL NO.: 09/800,800 |
| | APPLICANT(S): H. Yoshioka, et al. | |
| | FILING DATE: March 7, 2001 | GROUP NO.: 1744 |

UNITED STATES PATENT DOCUMENTS

| EXAM. INITIALS | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
|-------------------|----|--------------------|------------|--------------------------|----------------|----------------|----------------------------------|
| RC | AA | 5,576,822 | 11/19/1996 | Nero R. Lindblad, et al. | 255 | 301 | |
| | AB | | | | | | |
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| | BA | | | | | | |
| | BB | | | | | | |
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| RC | CC | Korean Patent Office Office Action dated April 30, 2004 for corresponding application no 10-2001-11161 (2 pp.) and English translation thereof (4 pp.) |
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| EXAMINER: R. CHIN | DATE: 7/29/04 |
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(12) **United States Patent**
Yoshioka et al.

(10) Patent No.: **US 6,810,548 B2**
(45) Date of Patent: **Nov. 2, 2004**

(54) **CLEANING APPARATUS**

(75) Inventors: **Hiroto Yoshioka**, Taki-gun (JP);
Takeshi Hara, Matsusaka (JP); **Kazuki Kobayashi**, Izumi (JP); **Hitoshi Ono**,
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(73) Assignee: **Sharp Kabushiki Kaisha**, Osaka (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 204 days.

(21) Appl. No.: **09/800,800**

(22) Filed: **Mar. 7, 2001**

(65) **Prior Publication Data**

US 2001/0027797 A1 Oct. 11, 2001

(30) **Foreign Application Priority Data**

Mar. 8, 2000 (JP) 2000-063897

(51) Int. Cl.⁷ **A46B 13/02**; **B08B 11/00**

(52) U.S. Cl. **15/77**; **15/21.1**; **15/88.2**;
15/88.3

(58) Field of Search **15/21.1**, **77**, **88.2**,
15/88.3, **102**

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Korean Patent Office First Office Action dated Apr. 30, 2003 (2 pp.) for application No. 10-2001-11161 and English Translation (3 pp).

Taiwanese Patent Office Action (Notice of First Rejection).

* cited by examiner

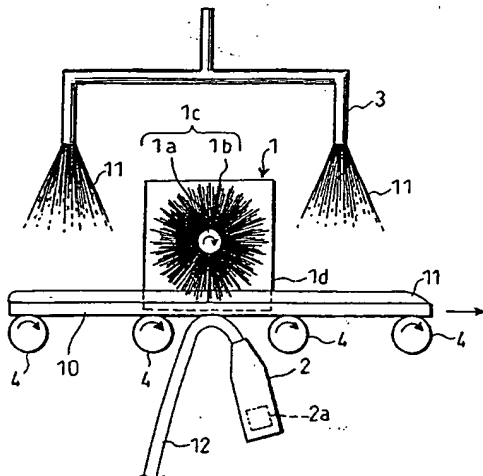
Primary Examiner—Randall Chin

(74) *Attorney, Agent, or Firm*—Edwards & Angell, LLP;
David G. Conlin; George W. Hatnell, III

(57) **ABSTRACT**

A cleaning apparatus of the present invention includes a roll brush for scrubbing the surface of the substrate, and an ultrasonic nozzle for blowing an aqueous cleaning solution against the surface of the substrate and generating an ultrasonic wave, wherein the roll brush and the ultrasonic nozzle are provided so as to oppose one another so that the substrate can be set in between. With the synergetic effects of brush scrubbing, cleaning, ultrasonic cleaning and shower-cleaning, the precision cleaning of the upper surface of the substrate can be performed at a sufficient level of cleanliness. Moreover, in a state where the substrate to be cleaned is set, the roll brush can be cleaned automatically by the ultrasonic nozzle, and it is therefore possible to maintain the roll brush at high level of cleanliness without requiring maintenance operations. Furthermore, by integrating the roll brush and the ultrasonic wave nozzle in one part, the size of the apparatus can be reduced in the transport direction of the substrate, thereby reducing an overall footprint area.

27 Claims, 6 Drawing Sheets





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Application No. (if known): 09/800,800

Attorney Docket No.: 55,661 (70904)

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Lakeisha Bryant

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Certificate of Correction in duplicate;
Request for Certificate of Correction, including copy of Form PTO-1449 (3 pages);
Copy of Title Page of U.S. Patent No. 6,810,548 (1 page).